

CLAIMS

What is claimed is:

1. A method for mounting a tibial condylar implant, the method comprising:

forming a tunnel having a proximal end on a lateral, medial, or anterior side of a proximal end of the tibia and a distal end on an at least partially resected lateral or medial facet at the proximal end of the tibia;

positioning a condylar implant over the distal end of the tunnel;

advancing a fastener into the tunnel from the proximal end of the tunnel;

and

securing the fastener at least partially disposed within the tunnel to the condylar implant.

2. A method as recited in claim 1, wherein the act of forming the tunnel comprises:

positioning a template over the lateral or medial facet of the tibia;

biasing a tubular guide sleeve against the lateral, medial, or anterior side of the proximal end of the tibia; and

passing a drill tool through the guide sleeve and into the tibia so as to form the tunnel.

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3. A method as recited in claim 1, wherein the condylar implant comprises a bearing plate and a stem projecting from a bottom surface of the bearing plate, the act of positioning the condylar implant comprising inserting at least a portion of the stem within the distal end of the tunnel.

4. A method as recited in claim 1, wherein the act of advancing the fastener into the tunnel comprises:

removably securing a driver to the fastener; and
using the driver to advance the fastener into the tunnel.

5. A method as recited in claim 1, wherein the fastener has a drive rod integrally attached thereto, the method further comprising severing the drive rod from the fastener after the fastener is secured to the condylar implant.

6. A method as recited in claim 1, further comprising advancing a tubular bone anchor into the tunnel from the proximal end of the tunnel so that the bone anchor engages with the tibia and encircles at least a portion of the fastener secured to the condylar implant.

7. A method as recited in claim 6, wherein the act of advancing the tubular bone anchor comprises advancing the tubular bone anchor over a driver extending from the fastener.

8. A method as recited in claim 6, securing a crown nut to the fastener so that the crown nut biases against the bone anchor and thereby tensions the fastener.

9. A method as recited in claim 8, wherein the act of securing the crown nut to the fastener comprises screwing the crown nut onto a portion of the fastener disposed within the bone anchor.

10. A method as recited in claim 8, further comprising backing the bone anchor a distance back toward the proximal end of the tunnel so as to further tension the fastener.

11. A method as recited in claim 1, further comprising advancing a tubular bone anchor into the tunnel from the proximal end of the tunnel so that the bone anchor engages with the tibia, the fastener being advanced into the tunnel after placement of the bone anchor such that at least a portion of the fastener passes through the bone anchor.

12. A method as recited in claim 11, wherein the act of securing the fastener to the condylar implant comprises screwing the fastener into the condylar implant so that the fastener biases against bone anchor.

13. A method as recited in claim 11, further comprising rotating the bone anchor so as to advance the bone anchor toward the proximal end of the tunnel after the fastener is secured to the condylar implant.

14. A condylar implant for mounting on the proximal end of a tibia, the condylar implant comprising:

a bearing plate having a top articular surface and an opposing bottom surface, the top articular surface being adapted to mate with a femoral condyle;

a stem downwardly projecting from the bottom surface of the bearing plate; and

means for connecting a fastener to the stem.

15. A condylar implant as recited in claim 14, wherein the stem has a central longitudinal axis and the stem is oriented so as to form an angle between the central longitudinal axis of the stem and the bottom surface of the bearing plate in a range between about 30° to about 80°.

16. A condylar implant as recited in claim 14, wherein the bearing plate comprises:

a lower bearing plate having the stem projecting therefrom; and

an upper bearing plate having the top articular surface formed thereon, one of the lower bearing plate and upper bearing plate having a track formed thereon while the other has a key that slidably rides within the track.

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17. A condylar implant as recited in claim 16, wherein the key has the configuration of a tenon while the track comprises a mortis configured to slidably receive the tenon.

18. A condylar implant as recited in claim 14, further comprising:
the bottom surface of the bearing plate having a pocket formed thereon; and
an inlay being secured within the pocket.
19. A condylar implant as recited in claim 18, wherein the inlay comprises a porous bone ingrowth material.
20. A condylar implant as recited in claim 19, wherein the pocket and the inlay encircle the stem.
21. A condylar implant as recited in claim 14, wherein the means for connecting the fastener to the stem comprises a threaded socket formed on the stem.
22. A condylar implant as recited in claim 14, wherein the bearing plate and the stem are integrally formed and are each comprised of a medical grade metal.
23. A condylar implant as recited in claim 14, wherein the bearing plate has a maximum thickness in a range between about 2 mm to about 10 mm.
24. A condylar implant as recited in claim 14, wherein the stem has a length in a range between about 2 mm to about 6 mm.

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25. A condylar implant as recited in claim 14, further comprising a mounting flange downwardly projecting from the bottom surface of the bearing plate at a perimeter edge of the bearing plate, the mounting flange bounding at least one hole extending therethrough.
26. A condylar implant system comprising:
the condylar implant as recited in claim 14, and
a fastener configured to mechanically engage with the stem.
27. A condylar implant system as recited in claim 26, wherein the fastener comprises a shaft having threads formed thereon.
28. A condylar implant system as recited in claim 27, further comprising an enlarged head integrally formed on the shaft or an enlarged crown nut removably mountable on the shaft.
29. A condylar implant system as recited in claim 26, further comprising a tubular bone anchor removably encircling at least a portion of the fastener.
30. A condylar implant system as recited in claim 29, wherein the fastener has external threads that rotate in a first direction and the bone anchor has external threads that rotate in a second direction that is opposite of the first direction.

31. A condylar implant system as recited in claim 29, wherein the bone anchor has an interior surface bounding a channel extending between a first end and an opposing second end, the first end terminating at a first end face, the channel comprising a first channel portion extending from the first end, a second channel portion extending from the second end, and a radially inwardly projecting shoulder disposed between the first channel portion and the second channel portion.

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32. A condylar implant for mounting on the proximal end of a tibia, the condylar implant comprising:

a bearing plate having a top articular surface and an opposing bottom surface, the top articular surface being adapted to mate with a femoral condyle;

a section of porous bone ingrowth material mounted on the bottom surface of the bearing plate; and

means for connecting a fastener to the bottom surface of the bearing plate.

33. A condylar implant as recited in claim 32, wherein the bearing plate comprises:

a lower bearing plate having the bottom surface formed thereon; and

an upper bearing plate having the top articular surface formed thereon, one of the lower bearing plate and upper bearing plate having a track formed thereon while the other has a key that slidably rides within the track.

34. A condylar implant as recited in claim 33, wherein the key has the configuration of a tenon while the track comprises a mortis configured to slidably receive the tenon.

35. A condylar implant as recited in claim 33, further comprising:
the bottom surface of the bearing plate having at least one pocket formed
thereon; and
the section of porous bone ingrowth material comprising an inlay being
secured within the at least one pocket.

36. A condylar implant as recited in claim 33, wherein the means for
connecting a fastener to the bottom surface of the bearing plate comprises a threaded
socket from on the bottom surface of the bearing plate.
37. A condylar implant as recited in claim 33, wherein the means for
connecting a fastener to the bottom surface of the bearing plate comprises a stem
projecting from the bottom surface of the bearing plate, the stem bounding a threaded
socket.

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38. A condylar implant system for use on the proximal end of a tibia, the system comprising:

a condylar implant comprising a bearing plate having a top articular surface and an opposing bottom surface;

an elongated fastener selectively mountable to the bottom surface of the bearing plate; and

a tubular bone anchor removably encircling at least a portion of the fastener.

39. A condylar implant system as recited in claim 38, wherein the condylar implant further comprises a stem projecting from the bottom surface of the bearing plate, the stem being configured to mate with the fastener.

40. A condylar implant system as recited in claim 38, wherein the fastener mounts to the bearing plate so as to form an inside angle between the fastener and the bottom surface of the bearing plate in a range between about 30° to about 80°.

41. A condylar implant system as recited in claim 38, wherein the bearing plate comprises:

a lower bearing plate having the bottom surface formed thereon; and
an upper bearing plate having the top articular surface formed thereon,
one of the lower bearing plate and upper bearing plate having a track formed
thereon while the other has a key that slidably rides within the track.

42. A condylar implant system as recited in claim 38, further comprising:

the bottom surface of the bearing plate having at least one pocket formed
thereon; and
an inlay comprised of a porous bone ingrowth material being secured
within the at least one pocket.

43. A condylar implant system as recited in claim 38, wherein the fastener
comprises an elongated shaft having a length in a range between about 5 mm to about
15 mm.

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44. A condylar implant system as recited in claim 38, wherein the fastener
comprises an elongated shaft having an enlarged head integrally formed thereon.

45. A condylar implant system as recited in claim 38, further comprising an
enlarged crown nut removably mountable to the fastener.

46. A condylar implant system as recited in claim 38, wherein the bone anchor comprises one or more threads or barbs formed on an exterior surface thereof.

47. A condylar implant system as recited in claim 38, wherein the fastener has at least one helical thread that engages with the condylar implant and the bone anchor has at least one external helical thread, the helical thread of the bone anchor rotating in a direction opposite of the helical thread of the fastener.

48. A condylar implant system as recited in claim 38, wherein the bone anchor has an interior surface bounding a channel extending between a first end and an opposing second end, the first end terminating at a first end face, the channel comprising a first channel portion extending from the first end, a second channel portion extending from the second end, and a radially inwardly projecting shoulder disposed between the first channel portion and the second channel portion.

49. A condylar implant system as recited in claim 48, wherein the fastener comprises a shaft having an enlarged head integrally formed thereon, the head being biased against the shoulder of the bone anchor.

50. A condylar implant system as recited in claim 48, further comprising an enlarged crown nut removably mounted on the fastener and biased against the shoulder of the bone anchor.

51. A condylar implant system as recited in claim 38, further comprising a drive rod integrally formed with the fastener, a plurality of spaced apart annular breaking grooves being formed at the intersection between the fastener and the drive rod.

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52. A condylar implant for mounting on the proximal end of a tibia, the condylar implant comprising:

a bearing plate having a top articular surface and an opposing bottom surface that each extend to an outer perimeter edge, the top articular surface being adapted to mate with a femoral condyle; and

a mounting flange downwardly projecting from the bottom surface at the perimeter edge, the mounting flange bounding at least one hole extending therethrough.

53. A condylar implant as recited in claim 52, further comprising:

the bottom surface of the bearing plate having a pocket formed thereon; and

an inlay comprised of a porous bone ingrowth material being secured within the pocket.

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54. A condylar implant for mounting on the proximal end of a tibia, the condylar implant comprising:

a bearing plate having a top articular surface and an opposing bottom surface, a recessed pocket being formed on the bottom surface, the pocket being bounded by a perimeter sidewall, the sidewall bounding at least one hole extending therethrough; and

an inlay comprised of a porous bone ingrowth material being secured within the pocket so that the hole through the sidewall remains openly exposed on both sides of the sidewall.

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